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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/787,745 01/24/97 HOEFLICH

J 29124-009

EXAMINER

QM12/0328

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BLAU, S
ART UNIT

PAPER NUMBER

3711
DATE MAILED:

03/28/01

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 24

Application Number: 08/787,745

Filing Date: 1/24/97

Appellant(s): John B. Hoeflich and Robin D. Arthur

Scott A. McCollister
For Appellant

EXAMINER'S ANSWER

This is in response to appellant's brief on appeal filed 11 January 2001.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

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A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

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(7) Grouping of Claims

Appellant's brief includes a statement that claims 1-3; 5; 6; 7-9; 11; 13-16 and 18; 12; 17; 19-20; and 21 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

4,725,060	Iwanaga	2-1988
5,156,396	Akatsuka	10-1992
5,308,062	Hogan	5-1994
5,437,450	Akatsuka	8-1995
5,571,051	Huang	11-1996

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(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Akatsuka.

Akatsuka discloses a shaft comprising a plurality of layers of fibers in a form of an inner, outer and reinforcement layers (Figure) imbedded in a synthetic resin in a form of a plastic material epoxy resin (Col. 4 Lns. 24-35, Col. 5 Lns. 1-7), a butt end of relatively larger cross sectional diameter (Col. 5 Lns. 62-68) tapering without intervening discontinuities to a tip end of relatively smaller diameter in a form of an outer diameter gradually increasing from one end adjacent to a tip end of a shaft to an other end adjacent to a grip end of a shaft (Col. 3 Lns. 56-60), a tip end having an outside diameter between .330 and .4 inches in form of a tip end having an inside diameter of 2-6 mm and a wall thickness of 1.2-3.2 mm (.17-.488 inches, Col. 5, Lns.

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62-68), a butt end having an outside diameter of from .520 to .540 inches in a form of an inside diameter of 11.5-14.5 mm and a wall thickness of .5-2.0 mm, and a butt end having a wall thickness of between .04 and .045 inches in a form of having a butt end wall thickness of .5-2.0 mm (Col. 5 Lns. 62-68).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akatsuka (5,437,450) as applied to claims 1-3, and further in view of Hogan.

Akatsuka discloses two inner layers of fibers in a form of two kinds of wound layers in an inner layer imbedded in epoxy and having fibers oriented at angles of +45 degrees and -45 degrees relative to an axis of a shaft (Col. 3 Lns. 64 through Col. 4 Ln. 35).

The difference between the claim and Akatsuka is that Akatsuka does not disclose graphite fibers. Hogan discloses shaft made with graphite fibers (Col. 3 Lns. 56-64). In view of

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the patent to Hogan it would have been obvious to have graphite fibers in order to have a stronger shaft for a stronger player who swings a club faster.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akatsuka (5,437,450) as applied to claims 1-3 above, and further in view of Hogan and Akatsuka (5,156,396).

The differences between the claim and Akatsuka (5,437,450) are that Akatsuka (5,437,450) does not disclose an intermediate layer of graphite fibers embedded in epoxy and fibers being oriented longitudinal to an axis of a shaft. Akatsuka (5,156,396) discloses a shaft with an intermediate and outer layer embedded in epoxy and fiber being oriented longitudinal to an axis of a shaft (Figure, Col. 2 Lns. 60 through Col. 3 Ln. 11). In view of the patent to Akatsuka (5,156,396) it would have been obvious to modify the shaft of Akatsuka (5,437,450) to replace the outer layer with an intermediate layer and an outer layer of Akatsuka (5,156,396) and as defined by the claim in order to have a shaft with more longitudinal stiffness. See paragraph 5 for elements previously rejected by Akatsuka (5,437, 450) in view of Hogan.

6. Claims 7-9, 11, 13-16, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akatsuka (5,437,450) in view of Hogan and Iwanaga.

Akatsuka discloses a shaft length of 45 inches (Col. 7, Ln. 34).

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The differences between the claims and Akatsuka are that Akatsuka does not disclose graphite fibers, a butt end comprising a substantially cylindrical cross section, a kick point above a center point of a shaft, a taper of an intermediate section being more significant than in a tip and butt section, and a tip end including parallel sidewalls.

Hogan discloses shaft made with graphite fibers (Col. 3 Lns. 56-64), a butt end having a cylindrical cross section, a taper of an intermediate section being more significant than a tip and butt section, and a tip end including parallel sidewalls (Fig. 2). In view of the patent to Hogan it would have been obvious to have graphite fibers in order to have a stronger shaft. In addition, it would have been obvious to have to have a butt end, intermediate section, and a tip end as defined by the claims in order to have a lower kick point compared to a uniform tapered shaft to obtain more elevation when hitting a ball for the same swing by having a stiffer butt end and a more flexible tip end.

Iwanaga discloses a shaft having a kick point above a center point of a shaft (Fig. 2) for a greater number club in order to ensure controlled swing for exact drop point of a ball (Col. 1, Lns. 41-51). In view of the patent of Iwanaga it would have been obvious to modify the shaft of Akatsuka to have a kick point above the center point of a shaft in order to provide a shaft for a club with a greater number which requires a more controlled swing for exact drop point of a ball.

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7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akatsuka (5,437,450) in view of Hogan and Iwanaga as applied to claims 7-9, 11, 13-16, 18 above, and further in view of Akatsuka (5,156,396).

See paragraph 6 above for elements previously rejected by Akatsuka (5,437,450) in view of Akatsuka (5,156,396).

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akatsuka (5,437,450) in view of Hogan and Iwanaga as applied to claims 7-9, 11, 13-16, 18 above, and further in view of Huang.

9. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akatsuka (5,437,450) in view of Hogan.

See paragraph 7 above for elements previous rejected by Akatsuka (5,437,450) in view of Hogan.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akatsuka (5,437,450) in view of Iwanaga.

See paragraph 7 above for elements previously rejected by Akatsuka (5,437,450) in view of Iwanaga. Very little weight is given to how a kick point is displaced since this is an apparatus claim and not a method claim.

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Response to Arguments

11. The argument that Akatsuka (450) does not disclose a tip diameter between .330 and .400 inches is disagreed with. Akatsuka discloses a range for an inside diameter and a range for a tip wall thickness and calculating all the possibilities for an outside diameter discloses a tip diameter as defined by the claims. The argument that Akatsuka (450) does not disclose .400 to .540 inches is disagreed with. Again calculations using the given butt end inner diameter and wall thicknesses produces a range that significantly overlaps the range defined by the claims. MPEP 2144.05 clearly only discusses situations when the overlap is extremely small. In review of the patent of Huang, the argument that it is improper to use the reference of Huang since Huang does not specifically disclose narrowing a shaft diameter is still disagreed with. There are many different sizes of butt ends for shafts. It is intuitive that one of the most important consideration for selecting a size of diameter of a butt end of a shaft is consideration with respect to the size of a player's hand. This is implied by the reference of Huang (Col. 6 Lns: 5-10) even though the patent of Huang is for a grip and Huang specifically discloses varying a grip profile. The argument that it is improper to use the reference of Hogan since it implies a stiffer butt end and a more flexible tip end is disagreed with. A shaft in the shape of Hogan can still have a kick point located in the top half of a shaft.

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12. The declaration dated 27 April 2000 has been considered but has not been persuasive. These claims are apparatus claims and words as "displacing" and "adjusting" with respect to the forming of a shaft are given little weight. Therefore words as "a butt diameter displacing a kick point" is given little weight. The importance of kick points are well known and old in the art and there are numerous ways to form a kick point with shaft diameter as being only one way. Wall thickness as well as type of material along the longitudinal axis of a shaft can also locate flex points.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CAR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CAR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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(11) Response to Argument

In the arguments filed 11 January 2001, the appellant argues:

1. It is improper to reject claims 1-3 under 35 U.S.C. 102 (b) as being anticipated by Akatsuka (5,437,450) since:

a. Akatsuka does not provide a single example of a shaft having a butt and tip diameter with the claimed range. In Akatsuka's examples when a tip diameter is in the claimed range the butt diameter is outside the range and when the butt diameter is in the claimed range the tip diameter is outside the claimed range. Akatsuka has broad ranges and there is insufficient specificity to constitute an anticipation to the claimed ranges

b. The preferred butt diameters are completely outside of the claimed ranges.

c. There is evidence of unexpected results within the claimed narrow range.

d. Criticality is established by the claimed range.

e. Akatsuka does not suggest combining a tip at the high end of the range of preferred tip thickness with a butt at the low end of the range of preferred butt thickness in order to move the kick point of the shaft higher.

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2. It is improper to reject claim 5 under 35 U.S.C. 103 (a) as being unpatentable by Akatsuka (5,437,450) in view of Hogan since either Akatsuka or Hogan do not suggest combining a tip at the high end of the range of preferred tip thickness with a butt at the low end of the range of preferred butt thickness in order to move the kick point of the shaft higher.

3. It is improper to reject claim 6 under 35 U.S.C. 103 (a) as being unpatentable by Akatsuka (5,437,450) in view of Hogan and Akatsuka (5,156,396) since neither Hogan or Akatsuka (5,156,396) add anything to the deficiencies in Akatsuka (5,437,450) with respect to the overall shaft dimensions.

4. It is improper to reject claims 7-9, 11, 13-16 and 18 35 U.S.C. 103 (a) as being unpatentable by Akatsuka (5,437,450) in view of Hogan and Iwanaga since:

- a. Akatsuka preferred ranges teaches away from the present invention. Akatsuka does not provide a single example within the claimed ranges.
- b. Evidenced by the Olsavsky Declaration moving a kick point higher by a decrease in the butt diameter of a shaft is unexpected.
- c. Hogan teaches away from applicant's invention.
- d. Iwanaga does not teach a longer shaft with a flex point above the center point of a shaft. As such Iwanaga teaches away from the invention.

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e. Iwanaga teaches away from the more uniform bend profile and higher kick point brought by a reduced butt diameter.

5. It is improper to reject claim 12 as being unpatentable by Akatsuka (5,437,450) in view of Hogan, Iwanaga and Akatsuka (5,156,396) since Akatsuka (5,437,450) preferred ranges for the butt end are outside of the claimed range and the two examples do not suggest combining a tip at a high end of the range of preferred tip thickness with a butt at the low end of the range of preferred butt thickness in order to move the kick point of the shaft higher. Hogan adds nothing to Akatsuka (5,437,450) deficiencies.

6. It is improper to reject claim 17 as being unpatentable by Akatsuka (5,437,450) in view of Hogan, Iwanaga and Huang since Huang was referring only to the grip as opposed to the butt end diameter of a shaft.

7. It is improper to reject claims 19-20 as being unpatentable by Akatsuka (5,437,450) in view of Hogan since Akatsuka (5,437,450) preferred range for the butt end are outside of the claimed range and the two examples do not suggest combining a tip at a high end of the range of preferred tip thickness with a butt at the low end of the range of preferred butt thickness in order to move the kick point of the shaft higher. Hogan adds nothing to Akatsuka (5,437,450) deficiencies.

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8. It is improper to reject claim 21 as being unpatentable by Akatsuka (5,437,450) in view of Iwanaga since Akatsuka (5,437,450) preferred range for the butt end are outside of the claimed range and the two examples do not suggest combining a tip at a high end of the range of preferred tip thickness with a butt at the low end of the range of preferred butt thickness in order to move the kick point of the shaft higher. Iwanaga does not teach a shaft between 35-47 inches and a kick point located above a center point. Since Iwanaga has a shaft with a discontinuity in the filament it is improper to combine with Akatsuka (5,437,450).

9. With respect to item 1a, the argument that Akatsuka is improper since Akatsuka does not provide a single example of a shaft having a butt and tip diameter with the claimed range is disagreed with. Akatsuka (5,437,450, Col. 5, Lns. 62-68) clearly discloses ranges for tip and butt diameters inside diameters and wall thickness which when combined include the dimensions for outer diameters within the ranges claimed. These allowed ranges of Akatsuka (5,437,450) clearly anticipate dimensions within the claimed ranges since golfers come in all strengths and sizes and require different flexibilities and dimensions. The argument that Akatsuka is improper since examples demonstrate that when a tip diameter is in the claimed range the butt diameter is outside the range and when the butt diameter is in the claimed range the tip diameter is outside the claimed range is disagreed with. Again, allowed ranges of Akatsuka (5,437,450) clearly anticipate dimensions within the claimed ranges since

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golfers come in all strengths and sizes and require different flexibilities and dimensions. The argument that Akatsuka has broad ranges and as such there is insufficient specificity to constitute an anticipation to the claimed ranges is disagreed with. Since there are an enormous amount of golfers, a golf club is a device which depends on a players stance and size, players have physical strength which may vary, different swing patterns require different flexibilities for a shaft, and players have different errors in their swing which require correction, the ranges of the dimensions of Akatsuka (5,437,450) are proper to make variations to custom fit shafts to specific golfers. The majority of golfers would not benefit from the two examples given since there is such a variation between golfers.

10. With respect to item 1b, the argument that Akatsuka (5,437,450) is improper since Akatsuka's (5,437,450) preferred butt diameters are outside of the claimed range when the preferred tip diameter is inside the claimed range is disagree with. Akatsuka clearly has allowed dimensions in which the claimed tip and butt diameters are in. Just because preferred dimensions are not selected Akatsuka made it clear that other dimensions are allowed otherwise the expanded ranges beyond the preferred ranges would not have been disclosed.

11. With respect to item 1c and 1d, the argument that Akatsuka (5,437,450) is improper since there is evidence of unexpected results within the claimed narrow range and criticality is established by the claimed range is disagreed with. Reducing the flexibility of a

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cylindrical shaft by reducing a diameter size, reducing the wall thickness or selecting different material are all well known in the art. In addition, golfers needing different overall flexibilities and different kick point locations to specifically benefit their play of the game are also well known in the art. Reducing the butt diameter of a shaft to make the butt end more flexible is expected and known in the art. Some players want the butt end more flexible with a high kick point in order to increase velocity of the head at impact. Other golfers need a more flexible tip end and rigid butt end with low kick point in order achieve more loft at impact. This last club is best for someone who does not achieve enough loft in hitting a ball. A shaft of this type will help correct this deficiency. The ranges as defined are not critical because the dimensions bring expected results and different dimensions are needed for different golfers.

12. With respect to item 1e, the argument that Akatsuka (5,437,450) is improper since Akatsuka does not suggest combining a tip at the high end of the range of preferred tip thickness with a butt at the low end of the range of preferred butt thickness in order to move the kick point of the shaft higher is disagreed with. First, nothing in the claims require the element of moving a kick point of a shaft higher by selection of a dimension. Therefore this element in Akatsuka is not required either. In addition, there is a suggestion of combining a tip at the high end of the range of preferred tip thickness with a butt at the low end of the range of preferred butt thickness in that the ranges are disclosed. If Akatsuka did not want to suggest this than the ranges would not have been written as disclosed. In fact there are patents

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out there that specifically discuss the practice of having a thick wall thickness for a tip end of a shaft and a thin wall thickness for a butt end of a shaft relating it to the flexibility (kick point) location of the shaft (Meredith 5,018,735).

13. With respect to item 2, the argument that Akatsuka (5,437,450) in view of Hogan is improper since either Akatsuka or Hogan do not suggest combining a tip at the high end of the range of preferred tip thickness with a butt at the low end of the range of preferred butt thickness in order to move the kick point of the shaft higher is disagreed with. Again, nothing in the claims require the element of moving a kick point of a shaft higher by selection of a dimension. Therefore this element is not required either in Akatsuka or Hogan. See paragraph 12 above for the argument that Akatsuka does suggest combining a tip at the high end of the range of preferred tip thickness with a butt at the low end of the range of preferred butt thickness.

14. With respect to item 3, the argument that Akatsuka (5,437,450) in view of Hogan and Akatsuka (5,156,396) is improper since neither Hogan or Akatsuka (5,156,396) add anything to the deficiencies in Akatsuka (5,437,450) with respect to the overall shaft dimensions is disagreed with. Hogan and Akatsuka (5,156,396) were not used to show dimensions. See paragraphs 9-12 above for the arguments with respect to Akatsuka (5,437,450) and dimensions. Hogan was used to show that it is known to use a carbon fiber in

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the form of graphite and Akatsuka (5,156,396) was used to show that it is known to have more longitudinal fibers.

15. With respect to item 4a, the argument that Akatsuka (5,437,450) in view of Hogan and Iwanaga is improper since Akatsuka preferred ranges teaches away from the present invention and does not provide a single example within the claimed ranges is disagreed with. See paragraphs 9-10.

16. With respect to item 4b, the argument that Akatsuka (5,437,450) in view of Hogan and Iwanaga is improper since evidenced by the Olsavsky Declaration, moving a kick point higher by a decrease in the butt diameter of a shaft is unexpected is disagreed with. Lowering flexibility of part of a shaft by reducing a diameter at that location is very old and known in the art as is reducing wall thickness of a shaft. Changing a kickpoint by lowering a diameter of a shaft is an expected result.

16. With respect to item 4c, the argument that Akatsuka (5,437,450) in view of Hogan and Iwanaga is improper since Hogan teaches away from applicant's invention is disagreed with. See paragraph 14 above.

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17. With respect to item 4d, the argument that Akatsuka (5,437,450) in view of Hogan and Iwanaga is improper since Iwanaga does not teach a longer shaft with a flex point above the center point of a shaft and as such Iwanaga teaches away from the invention is disagreed with. Iwanaga teaches the advantages of having a kick point above a center point of a shaft which is to have an exact drop point of a ball. This advantage can be for long shafts as well as for short shafts. Some golfers would prefer accuracy over distance for long shaft clubs while other golfers prefer distance over accuracy for long shaft clubs. This advantage is for all clubs even a club of 45 inches of Akatsuka.

18. With respect to item 4e, the argument that Akatsuka (5,437,450) in view of Hogan and Iwanaga is improper since Iwanaga teaches away from the more uniform bend profile and higher kick point brought by a reduced butt diameter is disagreed with. Nothing in the claim requires a uniform bend profile. In addition, Iwanaga was not used to show how to form a kick point but where it is placed and the advantage of having a high kick point. Using a shaft's diameter and shaft wall thickness is the most common means of placing a kick point along a shaft and it would be obvious to use the diameter and wall thicknesses within the ranges as disclosed by Akatsuka to develop a shaft having a kick point as defined by the claims.

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19. With respect to item 5, the argument that Akatsuka (5,437,450) in view of Hogan, Iwanaga and Akatsuka (5,156,396) is improper since Akatsuka's (5,437,450) preferred range for the butt end are outside of the claimed range and the two examples do not suggest combining a tip at a high end of the range of preferred tip thickness with a butt at the low end of the range of preferred butt thickness in order to move the kick point of the shaft higher is disagreed with. See paragraphs 9-14.

20. With respect to item 6, the argument that Akatsuka (5,437,450) in view of Hogan, Iwanaga and Huang is improper since Huang was referring only to the grip as opposed to the butt end diameter of a shaft is disagreed with. As stated in the Office Action dated 11/12/99 paragraphs 7-8 with Akatsuka (5,437,450) in view of Huang for claim 17, Huang states that the longitudinal profile of the grip and shaft should correspond to a player's hand size and shape. Shafts come in all sizes with respect to butt diameters and both the shaft and the grip must be designed based on a player's hand size and shape.

21. With respect to item 7, the arguments that Akatsuka (5,437,450) in view of Hogan since Akatsuka (5,437,450) is improper since preferred range for the butt end are outside of the claimed range, the two examples do not suggest combining a tip at a high end of the range of preferred tip thickness with a butt at the low end of the range of preferred butt thickness in

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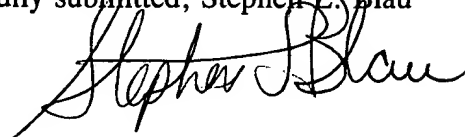
order to move the kick point of the shaft higher, and Hogan adds nothing to Akatsuka (5,437,450) deficiencies are disagreed with. See paragraphs 9-14 above.

22. With respect to item 8, the arguments that Akatsuka (5,437,450) in view of Iwanaga since Akatsuka (5,437,450) is improper since preferred range for the butt end are outside of the claimed range and the two examples do not suggest combining a tip at a high end of the range of preferred tip thickness with a butt at the low end of the range of preferred butt thickness in order to move the kick point of the shaft higher are disagreed with. See paragraphs 9-14 above. The argument that Iwanaga does not teach a shaft between 35-47 inches and a kick point located above a center point is agreed with. However Iwanaga was not used to teach shaft lengths. Akatsuka discloses a shaft length as claimed. Iwanaga was used to show the advantage of having a kick point above a center point for a shaft. The argument that using Iwanaga is improper since Iwanaga has a shaft with a discontinuity in the filament is disagreed with. Iwanaga was not used to show how to form kick points but the advantages of having a kick point above a center point for a shaft. Akatsuka discloses varying a flexibility of a shaft by varying the shaft diameter and wall thickness. Part of the flexibility of a shaft is the kick point location.


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For the above reasons, it is believed that the rejections should be sustained.


Respectfully submitted, Stephen L. Blau



Sebastiano Passaniti



Steve Wong (conferee)



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23 March 2001

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